

AMENDMENTS TO THE CLAIMS

Presented below is a complete set of claims with current status indicators.

1. (currently amended) An implantable device that detects and discriminates between ischemia and myocardial infarction of a patient's heart, the device comprising:
 - a plurality of electrodes that provide a plurality of cardiac activity sensing electrode configurations;
 - a sensing circuit that provides a plurality of electrograms ~~in response to each electrogram corresponding to cardiac activity sensed by a different one of the plurality of electrode configurations;~~ and
 - a discriminator that combines corresponding ST segments from the plurality of electrograms to determine an ST segment value and compares the ST segment value to a standard value to detect and discriminate between ischemia and myocardial infarction.
2. (previously presented) The device of claim 1 wherein the discriminator is responsive to a positive ST segment value with respect to a baseline and a negative ST segment value with respect to a baseline to detect myocardial infarction and ischemia respectively.
3. (original) The device of claim 1 wherein the device includes a conductive enclosure and wherein the conductive enclosure is one of the plurality of electrodes.
4. (previously presented) The device of claim 1 further comprising a summer that provides a sum of the absolute values of the electrograms and wherein the discriminator is responsive to the electrogram absolute value sum to detect ischemia and myocardial infarction.

5. (previously presented) An implantable device that detects and discriminates between ischemia and myocardial infarction of a patient's heart, the device comprising:

a plurality of electrodes that provide a plurality of cardiac activity sensing electrode configurations;

a sensing circuit that provides a plurality of electrograms in response to cardiac activity sensed by the electrode configurations;

a summer that provides a sum of the absolute value of the electrograms;

a divider that divides the electrogram absolute value sum by an amplitude of one of the electrograms to provide a normalized value; and

a discriminator that detects myocardial infarction and ischemia when the normalized value exceeds a predetermined value.

6. (original) The device of claim 5 wherein the amplitude of one of the electrograms is an R wave amplitude.

7. (previously presented) An implantable device that detects and discriminates between ischemia and myocardial infarction of a patient's heart, the device comprising:

a plurality of electrodes that provide a plurality of cardiac activity sensing electrode configurations;

a sensing circuit that provides a plurality of electrograms in response to cardiac activity sensed by the electrode configurations;

a summer that provides a sum of ST segments of the electrograms;

a divider that provides a normalized ST segment value from the ST segment sum; and

a discriminator that detects myocardial infarction when the normalized ST segment value is greater than a first value and detects ischemia when the normalized ST segment value is less than a second value.

8. (original) The device of claim 1 wherein the discriminator discriminates between an ischemic condition of the heart, a myocardial infarcted condition of the heart, and an equivocal condition of the heart.

9. (previously presented) An implantable device that detects and discriminates between ischemia and myocardial infarction of a patient's heart, the device comprising:

 a plurality of electrodes that provide a plurality of cardiac activity sensing electrode configurations;

 a sensing circuit that provides a plurality of electrograms in response to cardiac activity sensed by the electrode configurations;

 an arithmetic logic unit that provides an electrogram value of the electrograms; and

 a discriminator that detects myocardial infarction when the electrogram value is greater than a first value, ischemia when the electrogram value is less than a second value, and an equivocal condition when the electrogram value is between the first and second values.

10. (original) The device of claim 8 wherein the discriminator provides a secondary analysis in response to detecting an equivocal condition.

11. (original) The device of claim 10 wherein the discriminator determines at least one of patient heart rate, physical activity, and posture during the secondary analysis.

12. (previously presented) An implantable device that detects and discriminates between ischemia and myocardial infarction of a patient's heart, the device comprising:

 a plurality of electrodes that provide a plurality of cardiac activity sensing electrode configurations;

a sensing circuit that provides a plurality of electrograms in response to cardiac activity sensed by the electrode configurations;

a discriminator that discriminates between an ischemic condition of the heart, a myocardial infarcted condition of the heart, and an equivocal condition of the heart responsive to ST segments of the plurality of electrograms, and in response to detecting an equivocal condition, determines at least one of patient heart rate, physical activity, and posture and detects and discriminates between spasm, anxiety, and exercise induced ischemia.

13. (original) The device of claim 1 wherein the discriminator determines an ischemia burden responsive to detecting ischemia.

14. (original) The device of claim 13 wherein the ischemia burden is proportional to ischemia duration.

15. (currently amended) An implantable device that discriminates between ischemia and myocardial infarction of a patient's heart, the device comprising:

a plurality of electrodes that provide a plurality of sensing electrode configurations;

a sensing circuit that senses cardiac activity detected by the plurality of sensing electrode configurations to provide a plurality of cardiac activity signals, each cardiac activity signal corresponding to cardiac activity sensed by a different one of the plurality of electrode configurations; and

a discriminator that combines corresponding phases from the plurality of cardiac activity signals to obtain a phase value and compares the phase value to a standard value to discriminate between ischemia and myocardial infarction.

16. (previously presented) The implantable device of claim 15, wherein the corresponding phases comprise ST segments of the cardiac activity from the plurality of sensing electrode configurations.

17. (currently amended) A method of discriminating between ischemia and myocardial infarction of a patient's heart, the method comprising:

sensing cardiac activity of the heart with a plurality of cardiac activity sensing electrode configurations to provide a plurality of signals, each signal corresponding to cardiac activity sensed by a different one of the plurality of electrode configurations;

combining corresponding phases from the plurality of signals to obtain a phase value; and

comparing the phase value to a standard value to discriminate between ischemia and myocardial infarction.

18. (original) The method of claim 17 further comprising determining an ischemia burden responsive to detecting ischemia.

19. (original) The method of claim 17 wherein discriminating further comprises detecting an equivocal condition other than ischemia or myocardial infarction and wherein the method includes the further step of conducting a secondary diagnosis responsive to detecting the equivocal condition.

20. (original) The method of claim 19 wherein the secondary diagnosis includes determining at least one of heart rate, physical activity, and posture of the patient.

21. (previously presented) The method of claim 17 wherein the corresponding phases comprise ST segments and the phase value obtained comprises an ST segment value.

22. (previously presented) The method of claim 21 wherein comparing comprises detecting a myocardial infarction based on a positive ST segment value with respect to a baseline, and detecting ischemia based on a negative ST segment value with respect to a baseline.